

FACT SHEET FOR NPDES PERMIT NO. WA0040975

**Willapa Bay/Grays Harbor Oyster Growers Association
and
Farm and Forest Helicopter Service**

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicants	1. Willapa Bay/Grays Harbor Oyster Growers Association and 2. Farm and Forest Helicopter Service Inc.
Facility Name and Address	1. P.O. Box 309, Ocean Park WA 98540 2. P.O. Box 404, Napavine, WA 98565
Type of Facility	1. Association of Oyster Growers and 2. Agricultural Sprayers
SIC Code	1. 0913 and 2. 0721
Discharge Location	Waterbody name: Willapa Bay and Grays Harbor Latitude: 46° 24' N to 47° 00' N Longitude: 123° 51' W to 124° 02' W
Water Body ID Number	Willapa Bay 11-24-01, Grays Harbor 10-22-03

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

General History

Oysters have been farmed in Willapa Bay since about 1900.

Of the 45,000 acres of tidelands in Willapa Bay and 34,460 in Grays Harbor, approximately 9,000 acres (20%) in Willapa and 900 acres (3%) in Grays Harbor are farmed for oysters or clams.

Since the 1940's, Willapa Bay and Grays Harbor have experienced expansive growth in populations of burrowing ghost (*Neotrypaea californiensis*) and mud shrimp (*Upogebia pugettensis*). In Willapa Bay it is estimated that 15,000 to 20,000 acres are dominated by burrowing shrimp (Dumbauld and Tufts, 2000).

Over 3,000 acres of privately-owned oyster growing tidelands are estimated to have been permanently destroyed for not only oyster culture but also as habitat for nearly all other estuarine biota (e.g., eel grass, clams, worms, etc.).

History of Carbaryl Control

Due to its relatively low environmental persistence, carbaryl was identified in the early 1960s by public fisheries agencies after years of testing as the safest, most cost-effective, and reliable burrowing shrimp management tool. Over the past decade, the Department has authorized, in accordance with Chapter 90.48 Revised Code of Washington (RCW), the application of carbaryl to oyster beds for the control of burrowing shrimp. The Department issues growers Temporary Water Quality Modification Orders for applications that it assumes will modify water quality criteria as specified in Chapter 173-201A-110(1) Washington Administrative Code (WAC). The use of carbaryl for burrowing shrimp control currently complies with the provisions of Washington State Local Needs Pesticide Registration No. WA-900013 issued by EPA through the Washington Department of Agriculture under authority of section 24(c) of the Amended Federal Insecticide, Fungicide, and Rodenticide Act. Over 250 studies associated with burrowing shrimp biology and management in Willapa Bay have been conducted. An Environmental Impact Statement was completed in 1985 with over 120 citations related to burrowing shrimp control. A supplemental Environmental Impact Statement was completed in 1992 with an additional 75 citations on studies completed between 1984 and 1989. Since 1990, approximately 75 additional studies have been published or are in completed manuscript form. While many of these studies have focused on the affects of carbaryl in the brackish water environment of Willapa Bay, others have examined a wide range of directly related subjects such as alternative pest management strategies and tactics. In 1990-91, for example, some alternatives to chemical treatment were addressed as part of the burrowing shrimp committee's agenda.

Currently, the conventional plan to manage burrowing shrimp in the Willapa Bay and Grays Harbor is based on carbaryl applications. The use of carbaryl for burrowing shrimp is presently and has always been limited to Willapa Bay and Grays Harbor. Currently carbaryl is applied annually on 600 acres (1.3% of total intertidal acres) in Willapa Bay and 200 acres (0.58% of total intertidal acres in Grays Harbor, predominantly by helicopter during one or two extreme low tides during July or August.

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Industrial Process

Oyster farming takes place farming on privately-owned or leased intertidal areas of Willapa Bay and Grays Harbor. Oysters are cultivated through the propagation of larval oysters on shore or from natural reproduction which are then grown on natural sand and silt bottoms, existing oyster reefs and/or suspended on ropes or wires. Some oysters are grown from the larval stage in one place while others are shifted from bed to bed at various stages in their lives.

The Oyster Industry Economic Impact Study, Richard S. Conway, Dick, Conway and Associates, May 1991, gives the following information: The annual production of oysters in the state of Washington exceeds 1,000,000 gallons of which approximately two-thirds comes from Willapa Bay and Grays Harbor. In 1991, 670 people were directly employed in the oyster industry in Willapa Bay/Grays Harbor with an additional 380 people indirectly employed in support. Production varies throughout the year, peaking in the winter and reaching an annual low in the summertime. Best management practices employed have been governed over the years by continuous trials controlled by the Washington Departments of Ecology, Fish and Wildlife, and Agriculture. These efforts have identified a minimum application rate and the least dispersive methods of application. Further best management practices will be determined in the form of an integrated pest management plan that is currently being prepared under a memorandum of agreement between Ecology, Fish and Wildlife, Pesticide Registration Board, Pacific Shellfish Institute, Agriculture and the growers. This is a new source for the NPDES program, although the application of carbaryl has been allowed using State Temporary Quality Modifications.

On March 12, 2001, the U.S. Court of Appeals for the Ninth Circuit in *Headwaters Inc. v Talent Irrigation District* ruled that water quality modifications for herbicide applications in waters of the United States (irrigation waters) would require a NPDES permit in addition to or in place of a water quality modification. Based on this decision, Ecology determined to write NPDES permits for all temporary water quality modifications for the application of pesticides under WAC 173-201A-110(1). Given the lack of time between March 1, 2001, and the burrowing shrimp spraying season (July-August), Ecology could not issue an NPDES permit for carbaryl application to burrowing shrimp. Although the oyster growers association had a temporary water quality modification to apply carbaryl in 2001, they chose not to apply carbaryl out of fear of a civil suit under the Clean Water Act. The Department of Ecology proceeded to issue permits for all pesticide applications to waters of the United States.

DISCHARGE OUTFALL

There is no discrete outfall for this permit, the discharges occur at shifting area locations once every three to ten years as required. The receiving waters are Willapa Bay and Grays Harbor. Sites are selected upon application for annual operation plan.

PERMIT STATUS

This is a previously un-permitted activity under the NPDES program. An application for a permit was submitted to the Department on October 15, 2001, and accepted by the Department on October 16, 2001.

WASTEWATER CHARACTERIZATION

The proposed wastewater discharge (tidal flow from site) is brackish seawaters with carbaryl in suspension.

SEPA COMPLIANCE

SEPA compliance is not required for a facility that has undergone an EIS. This is the Supplemental EIS dated March 31, 1992. SEPA, however, has been done.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

Design criteria are inappropriate for this application since there is no treatment facility extant or proposed.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

The areal extent and application density of the present carbaryl treatment are pragmatic limitations that have so far shown little deleterious effects to the environment. Nevertheless, the use of non-chemical controls has not been as thoroughly studied as has the application of carbaryl. In order to establish AKART for burrowing shrimp controls, studies have been required in the Schedule of Compliance. These studies should serve to establish technology based effluent limitations.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses

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of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL). Surface water quality based limits do not include carbaryl as a pollutant.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit. The extant numerical criteria for the protection of aquatic life do not list carbaryl as a pollutant. Criteria developed by the Department in accordance with the provisions of WAC 173-201A-040 (1) and (2) utilizing the protocols developed by the USEPA show that the criteria for carbaryl should be acute at 3.0 µg/l and chronic at 0.06 µg/l. Given the evidence presented in the Final Supplemental Environmental Impact Statement, Use of the Insecticide Carbaryl to Control Ghost and Mud Shrimp in Oyster Beds of Willapa Bay and Grays Harbor, Washington Department of Fisheries and the Washington Department of Ecology, Olympia, Washington, March 31, 1992, the tidal plume generated from the incoming tide over treated oyster beds would result in a concentration of 3200 µg/l at the edge of the statutory acute mixing zone and a concentration of 8450 µg/l at the edge of the statutory chronic mixing zone. See Appendix C. No mixing zone has been granted in this instance. Since this carbaryl application is authorized under a short term modification, numerical limits apply at the acute and chronic boundaries of a special mixing zone.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters. The extant numerical criteria for the protection of human health do not list carbaryl as a pollutant.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington. The narrative criteria do not list carbaryl as a pollutant.

SHORT TERM MODIFICATION

When concentrations of a substance exceed the acute and chronic limits either stated in WAC 173-201A-030 or derived under WAC 173-201A-140, the regulation allows the Department to issue a short-term modification to the water quality standards. WAC 173-201A-110(1) specifically authorizes a short-term modification of water quality standards for the control of burrowing shrimp. Since the average concentrations exceed the Numerical Criteria for the Protection of Aquatic Life by several orders of magnitude, the Department proposes to issue short-term modifications of the criteria until a thorough AKART study has been done as is required in Special Condition S6. The amount of time given for

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AKART research reflects both the minimum time required to do the work and the time necessary to process the submittal.

ANTIDegradation

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070. Since this carbaryl application is authorized under a short term modification, numerical limits do not apply at this time under this condition.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses. The application condition of the summer period (June through August) and low tides define the critical condition.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100. AKART studies are required in the Schedule of Compliance.

DESCRIPTION OF THE RECEIVING WATER

The treated areas discharge to Willapa Bay and Grays Harbor that both designate as Class A receiving water. Nearby point source outfalls include the Westport POTW and Merino's Seafood in Westport for Grays Harbor. Willapa Bay has point source inputs from the Willapa River (Raymond and South Bend POTWs and fish processors Coast Seafoods, Wiegert Bros., South Bend Packers and East Point Seafoods), and Nelson Crab Inc. in Tokeland. Significant nearby non-point sources of pollutants include cranberry bogs in Grayland, where Carbaryl has been found in samples collected in connection with a study of pesticide contamination in these bogs. Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

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SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

A determination of reasonable potential using zero for background resulted in no reasonable potential. The Permittee is required in section S2 of the proposed permit to collect background concentrations and consequent samples for verification.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The criteria do not list carbaryl as a pollutant.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the site conditions that the discharge has no potential to violate the Sediment Management Condition. See the attached checklist Appendix E.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for carbaryl is being required to determine if this substance is in any way persistent in the environment. The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The proposed permit requires the Permittee to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

SCHEDULE OF COMPLIANCE

The application of pesticides to the waters of the state is in a state of regulatory flux. Segments of the environmental community have successfully challenged the previous methods of permitting the application of pesticides for the control of aquatic and marine organisms. It is expected that these same organizations will continue to challenge these applications on other grounds. It is the intent of the Schedule of Compliance to include studies to establish alternatives to pesticide application for AKART for burrowing shrimp control. To date, the Washington Departments of Ecology, Agriculture, Fish and Wildlife and the Washington State Commission on Pesticide Registration, singly and in combination, have required, sponsored, funded, and approved the multitudinous studies mentioned in this document and the permit application. The oyster growers have cooperated in these studies. These studies, however, were weighted toward the study of carbaryl application. The oyster growers themselves conducted several informal trials of non-chemical burrowing shrimp control, a number of which were reported in publications. To quote page 8-6 of An Evaluation of the Feasibility of Using Integrated Pest Management to Control Burrowing Shrimp in Commercial Oyster Beds, Battelle Marine Sciences Laboratory, Sequim, WA, August 1997, thus “*Very few rigorous or Quantitative studies have been conducted to measure the efficacy or costs and benefits of the control methods (with the exception of carbaryl pesticide).*” These rigorous studies are now required.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The permit will expire on June 30, 2007.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA).

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department published the following public notices regarding the development of this permit and announcing public workshops and hearings:

- State Register (WSR 01-15-082) filed on July 18, 2001
- Meeting Notice (publication number 1-10-054) published in September 2001
- Notice of Permit Development published in October 2001
- State Register (WSR 02-03-110) filed on January 22, 2002
- Legislative Focus Sheet in January 2002
- Meeting Notice (publication number 02-10-005)
- News Release #02-027 issued on February 13, 2002

The Legislative Focus Sheet and Meeting Notices were mailed to potential permittees, environmental groups, industry representatives, the tribes, agencies with jurisdiction for aquatic pest control, and other interested parties. They were also published on the Department of Ecology web site. The News Releases were published and announced in Western Washington newspapers and radio stations.

Two public meetings took place. The first meeting was an information workshop and hearing and was held on March 8, 2002, in South Bend. The second hearing took place on April 10, 2002, in Lacey.

The Department also published a Public Notice of Draft (PNOD) on February 20, 2002, in the *Aberdeen Daily World*, *Willapa Harbor Herald*, and *Chinook Observer*. These public notices informed the public that a draft permit and fact sheet were available for review. It said that interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98004-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

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The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6285 or by writing to the address listed above.

This permit and fact sheet were written by Gary Anderson P.E..

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

CONCENTRATION OF CARBARYL AT EDGE OF REGULATORY MIXING ZONE

Reference:

Johnson Art, March 2001. Carbaryl Concentrations in Willapa Bay and Recommendations for Water Quality Guidelines. Ecology Publication No. 01-03-005.

From: Washington Department of Fisheries and Washington Department of Ecology, Olympia, Washington March 31, 1992. Supplemental Environmental Impact Statement, Use of the Insecticide Carbaryl to Control Ghost and Mud Shrimp in Oyster Beds of Willapa Bay and Grays Harbor. Pg. 26

Referencing:

Tufts, D. F. (ed.). 1990. Control of Burrowing Shrimp in Willapa Bay and Grays Harbor in 1987, Washington Department of Fisheries, Special Shellfish Report No. 5. Draft Report.

Chronic Toxicity (concentration at the edge of the chronic mixing zone)

The boundary of the regulatory mixing zone in an estuary is 200 feet (61 meters) from the point of discharge. In the study, concentrations of carbaryl were taken at the leading edge of the contaminate plume with the rising tide from both the bottom water layer and the surface water layer. Averaging both the charts for a 61 meter distance as shown on Figure 5, Page 26, we get the following concentration.

Average Concentration, Bottom Layer:

50 meters: $[(8/2)(1)+(25/2)(1)+(34/2)(2)+(21/2)(4)+(5/2)(8)]/16 = 7\text{mg/l}$

75 meters: $[(14/2)(4)+(28/2)(4)+(14/2)(8)]/16 = 8.75\text{ mg/l}$

Interpolating at 61 meters: $7+(1.75(11/25)) = 7.77\text{ mg/l}$

Average Concentration, Top Layer:

50 meters: $[(14/2)(2)+(27/2)(2)+(25/2)(4)+(13/2)(8)]/16 = 8.5\text{ mg/l}$

75 meters: $[(2/2)(2)+(15/2)(2)+(31/2)(4)+(20/2)(8)]/16 = 9.938\text{ mg/l}$

Interpolating at 61 meters: $8.5+(1.438(11/25)) = 9.13\text{ mg/l}$

Averaging top and bottom layers $(9.13+7.77)/2 = 8.45\text{ mg/l}$

Ratio of Actual Concentration to Chronic Criteria:

Chronic Criteria = $0.06\text{ }\mu\text{g/l}$

$8450\text{ }\mu\text{g}/.06\text{ }\mu\text{g/l} = 140,833\text{ to }1$

Acute Toxicity (concentration at the edge of the acute mixing zone)

The boundary of the chronic regulatory mixing zone is an estuary is 20 feet (6.1 meters) from the point of discharge. In the study, concentrations of carbaryl were taken at the leading edge of the contaminate plume with the rising tide from both the bottom water layer and the surface water layer. Averaging both the charts for a 6.1 foot distance as shown on Figure 5, Page 26, we get the following concentration.

Average Concentration, Bottom Layer:

0.0 meters: $[(34/2)(1)+(21/2)(1)+(6/2)(2)+(4/2)(4)+(2/2)(8)]/16 = 3.1 \text{ mg/l}$

50.0 meters: $[(8/2)(1)+(25/2)(1)+34/2(2)+(21/2)(4)+(5/2)(8)]/16 = 7 \text{ mg/l}$

Interpolating at 6.1 meters: $3.1+(3.9(6.1/50)) = 3.6 \text{ mg/l}$

Average Concentration, Top Layer:

0.0 meters: $[(20/2)(2)+(12/2)(2)+(2.5/2)4+(1/2)(8)] = 2.6 \text{ mg/l}$

50 meters: $[(14/2)(2)+(27/2)(2)+(25/2)(4)+(13/2)(8)]/16 = 8.5 \text{ mg/l}$

Interpolating at 6.1 meters: $2.6+(0.5(6.1/50)) = 2.7 \text{ mg/l}$

Averaging top and bottom layers: $(3.6+2.7)/2=3.2 \text{ mg/l}$

Ratio of Actual Concentration to Chronic Criteria

Acute Criteria = $3200/3.0 \text{ } \mu\text{g/l} = 1067 \text{ to } 1$

APPENDIX D--RESPONSE TO COMMENTS

See attached Response To Comments.

APPENDIX E

SEDIMENT SCREENING

Applicant: Willapa Bay/Grays Harbor Oyster Growers Association and Farm and Forest Helicopter Service Inc.

Waste Discharge Permit No.: WA-0040975

Location: Ocean Park and Napavine, Washington

1. A discharge is general considered not to have a risk for causing adverse sediment impacts if the facility is

- ☐ a freshwater discharge to marine water,
☐ has secondary wastewater treatment or equivalent and
☒ discharges to an area with an average tidal velocity of 1 cm/sec or greater.

If all three of these are not applicable proceed to 2.

2. A discharge is generally considered to have a risk for causing adverse sediment impacts if the facility meets any of the following criteria (check any that apply and attach a brief explanation):

- ☐ Uses, stores, produces as a product or waste, or transfers any hazardous substance listed in 40 CFR 302.4, with a statutory code of 1 or 2, [referring to Sections 311(b)(4) or 307(a) of the Clean Water Act] unless:

The facility is designed and managed so that these substances are kept fully physically separated at all times, including spills or any other accidental release, from any part of the wastewater collection, treatment, or discharge system or stormwater system; or

The amount of any hazardous substance at the facility is never more than the statutory reportable quantity listed in 40 CFR 302.4.

- ☐ Discharges any chemical pollutant listed in Appendix D of 40 CFR Part 122, Table II, in its effluent (*attach a list of any such pollutants known to be discharged*).

- ☐ Has a reasonable potential to violate water quality standards for any pollutant in Appendix D of 40 CFR Part 122, Table III (*attach a list of any such pollutant known to be discharged*).

- ☐ Discharges other potentially deleterious substances, such as any of the following (*check any that apply*):

____ Solid inorganic materials (e.g., paint chips, slag)

____ Radionuclides

____ Other (describe)

- ☐ Belongs to any industry category identified in 40 CFR Part 122, Appendix A.

- ☐ Is a municipal facility that receives a discharge from any industry category identified in 40 CFR Part 403, Appendix C.

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Willapa Bay/Grays Harbor Oyster Growers Association

Sediment Screening
Page 2

- ☐ Any facility with whole effluent toxicity detected during the last five years based on:
 - Less than 80 percent survival in 100 percent effluent; or
 - The no observed effects concentration for chronic toxicity being less than or equal to the acute critical effluent concentration; and
 - Not attributable to a known chemical
 - ☐ Any facility with suspected sediment toxicity because of apparent damage to aquatic biota in the immediate vicinity of the discharge.
 - ☐ Any other discharge that Ecology determines has the potential to include toxic substances that may accumulate in the sediment.
3. The following types of discharges (**check if applicable**) are generally not believed to have a potential for causing adverse sediment impacts unless one of the above factors, in item 2, applies:
- ☐ Once-through noncontact cooling water without biocides.
 - ☐ Municipal plants discharging less than one-half million gallons per day of effluent that are regulated only for conventional pollutants.
 - ☐ Drinking water treatment plants.

FACT SHEET FOR NPDES PERMIT NO WA0040975
Willapa Bay/Grays Harbor Oyster Growers Association

APPENDIX F

State of Washington
 Department of Agriculture
 Olympia, Washington 98504

PESTICIDE APPLICATION RECORD (Version 3)

NOTE: This form must be completed same day as the application
 and it must be retained for 7 years (Ref. RCW 17.21)

1. Date of Application - Year: Month: Day(s):
2. Name of Person for whom the pesticide was applied:
 Firm Name (if applicable):
 Street Address: City: State: Zip:
3. Licensed Applicator's Name (if different from #2 above): License No.
 Firm Name (if applicable): Tel. No.
 Street Address: City: State: Zip:
4. ☐ Air ☐ Ground ☐ Chemigation
5. Application Crop or Site:
6. Total Area Treated (acre, sq. ft., etc.):
7. Was this application made as a result of a WSDA Permit? ☐ No ☐ Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
			/	
			/	
			/	
			/	
			/	

9. Address **or exact location** of application. NOTE: if the application is made to one acre or more
 of agricultural land, the field location must be shown on the map on page two of this form.

10. Date	11. Name of person(s) making the application	12. License No.	13. Apparatus Lic. Plate No.	14. Time Start	14. Time Stop	15. Acres Completed	16. Wind Dir.	16. Wind Vel.	17. Temp

AGR 4236 (Rev. 4/99)

*FACT SHEET FOR NPDES PERMIT NO WA0040975
Willapa Bay/Grays Harbor Oyster Growers Association*

[illegible]

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only:

Township: N

Range: E OR W (please indicate)

Section(s):

County: ..

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.

[illegible]

Miscellaneous Information:

INSTRUCTIONS

Pesticide Application Record (Version 3) AGR 4236 (Rev. 4/99)

1. Date may be spelled out or indicated numerically. Time may be indicated as start and stop times.
2. Please include first and last name.
3. If the person's name is the same as No. 2, please write "same" in the space for the licensed applicator's name and include the license number (if applicable) and telephone number.
4. Please check one.
5. Indicate type of land or site treated, not location. Examples: wheat, apples, rights-of-way, lawn, trees and shrubs, crawl space, wall voids, etc.
6. May also be stated in terms such as linear feet, cubic feet, etc. (Please specify the term to which the number refers.)
7. If the application was made under permit, but no permit number was issued, please indicate the date the permit was issued.
8.
 - a) Brand name found on the pesticide label.
 - b) This number is found on the pesticide container label. If the material is being applied under a federal experimental use permit and no EPA Reg. No. exists, please list the federal experimental use permit number. If the material is a spray adjuvant (buffer, spreader, sticker, etc.) please write "adjuvant" in this space.
 - c) Indicate the amount of pesticide formulation (product) applied to the total area listed on line 6.
 - d) Other measures may include amount/sq. ft., amount/cu. ft., amount/linear ft., etc.
 - e) This may be listed in various ways, such as: amount of formulation/100 gallons water, percent formulation in the tank mix (i.e. 1%), amount of tank mix/acre (or other measure). Please specify the term to which the number refers.
9. Agricultural land includes such areas as forest lands and range lands. It does not include transportation and utility rights-of-way.
10. List the day of application
11. Please indicate first and last name(s).
12. List license number(s) if applicable.
13. This does not apply to private applicators or public agencies.
14. Indicate a.m. or p.m.
15. The total of all entries in this column should equal the total listed on line 6.
16. Indicate the direction from which the wind is blowing. If the wind varies in direction and velocity during the application, please indicate the range of variance (i.e. S-SW 3-7 mph).
17. Please indicate temperature in degrees Fahrenheit. (It may be indicated as the range encountered during the application.)